

IN THE CLAIMS

Please amend claims 1, 9, and 16 and add new claims 24-26 as follows:

1. (CURRENTLY AMENDED) A method for managing memory, comprising:  
breaking up an existing file into two or more memory blocks for use by an application;  
managing the two or more memory blocks as nodes in a heap tree; and  
receiving a request from the application for storage;  
allocating one or more blocks in the file for use by the application; and  
independently compressing one or more of the two or more memory blocks without  
~~reprocessing~~ compressing the entire file.

2. (PREVIOUSLY PRESENTED) The method of claim 1, further comprising:  
receiving a request to access memory at a linear file address; and  
translating the linear file address to an appropriate heap block reference to access the  
memory block, wherein the translating utilizes a file address mapping tree comprising a mapping  
from linear file addresses to heap block references.
3. (ORIGINAL) The method of claim 2, further comprising updating the file address  
mapping tree when a block is inserted into the heap tree.
4. (ORIGINAL) The method of claim 2, further comprising updating the file address  
mapping tree when address space is deleted by:  
deleting an associated block from the heap tree;  
reducing a size of partial blocks as needed; and  
adjusting the file address mapping tree accordingly.

5. (PREVIOUSLY PRESENTED) The method of claim 2, wherein:
  - (a) the request to access memory comprises a request to insert data into the file at an  
insertion point; and
  - (b) the method further comprises:

- (i) breaking one of the memory blocks at the insertion point; and
- (ii) inserting the new data as a node in the heap tree.

6. (WITHDRAWN) A method for allocating memory comprising:  
maintaining, in a tree, a tri-linked list of deallocated memory units available for use by a  
heap, wherein a first link points to available deallocated memory units smaller than a current block  
size, a second link points to available deallocated memory units equal to the current block size, and a  
third link points to available deallocated memory units larger than the current block size;  
receiving a request for memory;  
traversing the tree to find a deallocated memory unit that satisfies the request for memory;  
and  
allocating the deallocated memory unit that satisfies the request.

7. (WITHDRAWN) The method of claim 6, wherein the traversing does not search  
the second link.

8. (WITHDRAWN) The method of claim 6, wherein memory units of equal size are  
linked together in the tree.

9. (CURRENTLY AMENDED) A system for managing memory comprising:  
(a) an existing file broken up into two or more blocks of memory for use by an application;  
(b) a heap tree configured to manage the two or more blocks of memory as nodes in the  
heap tree, wherein:

- (i) the heap tree receives a request from the application for storage;
- (ii) the heap tree allocates one or more blocks in the file for use by the application; and
- (iii) one or more of the two or more blocks of memory are independently compressed without reprocessing compressing the entire file.

10. (PREVIOUSLY PRESENTED) The system of claim 9, wherein:
- (i) each node has a heap block reference;
  - (ii) the heap tree is configured to receive a request to access memory at a linear file address; and
- (iii) the heap tree is configured to translate the linear file address to an appropriate heap block reference to access the memory block; and wherein the system further comprises a file address mapping tree utilized by the heap tree, wherein the file address mapping tree comprises a mapping from linear file addresses to heap block references.
11. (ORIGINAL) The system of claim 10, wherein the file address mapping tree is updated when a block is inserted into the heap tree.
12. (ORIGINAL) The system of claim 10, wherein the file address mapping tree is updated when address space is deleted by:
- deleting an associated block from the heap tree;
  - reducing a size of partial blocks as needed; and
  - adjusting the file address mapping tree accordingly.
13. (PREVIOUSLY PRESENTED) The system of claim 10, wherein:
- (a) the request to access memory comprises a request to insert data into the file at an insertion point; and
  - (b) the heap tree is configured to insert the data by:
    - (i) breaking one of the memory blocks at the insertion point; and
    - (ii) inserting the new data as a node in the heap tree.
14. (WITHDRAWN) A system for allocating memory comprising:
- (a) a heap tree comprising a tri-linked list of deallocated memory units available for use by a heap;
  - (b) a first link of the tri-linked list pointing to available deallocated memory units smaller than a current block size;

- (c) a second link of the tri-linked list pointing to available deallocated memory units equal to the current block size;
- (d) a third link of the tri-linked list pointing to available deallocated memory units larger than the current block size;
- (e) the heap configured to:
  - (i) receive a request for memory;
  - (ii) traverse the heap tree to find a deallocated memory unit that satisfies the request for memory; and
  - (iii) allocate the deallocated memory unit that satisfies the request.

15. (WITHDRAWN) The system of claim 14, wherein memory units of equal size are linked together in the heap tree.

16. (CURRENTLY AMENDED) An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the computer to perform a method for managing memory, the method comprising:

breaking up ~~a~~an existing file into two or more memory blocks for use by an application;  
managing the two or more memory blocks as nodes in a heap tree;  
receiving a request from the application for storage;  
allocating one or more blocks in the file for use by the application; and  
independently compressing one or more of the two or more memory blocks without  
reprocessing compressing the entire file.

17. (PREVIOUSLY PRESENTED) The article of manufacture of claim 16, the method further comprising:

receiving a request to access memory at a linear file address; and  
translating the linear file address to an appropriate heap block reference to access the memory block, wherein the translating utilizes a file address mapping tree comprising a mapping from linear file addresses to heap block references.

18. (PREVIOUSLY PRESENTED) The article of manufacture of claim 17, wherein the method further comprises updating the file address mapping tree when a block is inserted into the heap tree.

19. (ORIGINAL) The article of manufacture of claim 18, wherein the file address mapping tree is updated when address space is deleted by:

- deleting an associated block from the heap tree;
- reducing a size of partial blocks as needed; and
- adjusting the file address mapping tree accordingly.

20. (PREVIOUSLY PRESENTED) The article of manufacture of claim 18, wherein:

- (a) the request to access memory comprises a request to insert data into the file at an insertion point; and
- (b) the method further comprises:
  - (i) breaking one of the memory blocks at the insertion point; and
  - (ii) inserting the new data as a node in the heap tree.

21. (WITHDRAWN) An article of manufacture comprising a program storage medium readable by a computer and embodying one or more instructions executable by the computer to perform a method for allocating memory, the method comprising:

maintaining, in a tree, a tri-linked list of deallocated memory units available for use by a heap, wherein a first link points to available deallocated memory units smaller than a current block size, a second link points to available deallocated memory units equal to the current block size, and a third link points to available deallocated memory units larger than the current block size;

- receiving a request for memory;
- traversing the tree to find a deallocated memory unit that satisfies the request for memory;
- and
- allocating the deallocated memory unit that satisfies the request.

22. (WITHDRAWN) The article of manufacture of claim 21, wherein the traversing does not search the second link.

23. (WITHDRAWN) The article of manufacture of claim 21, wherein memory units of equal size are linked together in the tree.

24. (NEW) The method of claim 1 further comprising:  
allocating a different one or more memory blocks of a different size when the independently compressing compresses to a new size; and  
independently compressing the different one or more memory blocks without compressing the entire file.

25. (NEW) The system of claim 9 wherein the heap tree is further configured to:  
allocate a different one or more memory blocks of a different size when the independently compressing compresses to a new size; and  
independently compress the different one or more memory blocks without compressing the entire file.

26. (NEW) The article of manufacture of claim 16 wherein the method further comprises:  
allocating a different one or more memory blocks of a different size when the independently compressing compresses to a new size; and  
independently compressing the different one or more memory blocks without compressing the entire file.